

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCTP173443	<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/NL2004/000556	International filing date ( <i>day/month/year</i> ) 06.08.2004	Priority date ( <i>day/month/year</i> ) 08.08.2003	
International Patent Classification (IPC) or national classification and IPC A21D2/14, A23L3/3508			
Applicant VERDUGT B.V.			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <ul style="list-style-type: none"> <li>a. <input checked="" type="checkbox"/> <i>(sent to the applicant and to the International Bureau)</i> a total of 3 sheets, as follows:           <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> </li> <li>b. <input type="checkbox"/> <i>(sent to the International Bureau only)</i> a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</li> </ul>	
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>	

Date of submission of the demand  06.06.2005	Date of completion of this report  16.11.2005
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Boddaert, P  Telephone No. +31 70 340-3471



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NL2004/000556

IAP20 Rec'd PCT/PTO 07 FEB 2006

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

**Description, Pages**

1-9 as originally filed

**Claims, Numbers**

1-15 received on 06.06.2005 with letter of 06.06.2005

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
- 3.  The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
- 4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NL2004/000556

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes:	Claims	1-15
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-15
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-15
	No:	Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/NL2004/000556

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Document US2898372 discloses a mixture of calcium acetate propionate and calcium dipropionate as preservative agent in dough and bakery products.

Document US2154449 discloses a mixture of calcium propionate as preservative agent (mold inhibition) in dough and bakery products.

Document GB1515425 discloses the use of an acid propionate salt as a preservative agent in dough and bread products.

Document GB1458625, which is considered to represent the most relevant state of the art, discloses the use of an encapsulated calcium propionate monohydrate as preservative agent in dough and bread products.; from which the subject-matter of claim 1,3,8,9,11,12,14,15 differs in that a mixture of salts is applied comprising M(X)2 and M(X)(OH) , with M being Ca and/or Mg and X an organic carboxylic acid anion , and corresponding to the general formula M(X)2-n(OH)n , with n in the range between 0 and 2 , not being 0 or 2.

The subject-matter of claims 1,3,8,9,11,12,14,15 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as the provision of a slow release food preservative resulting in a long term preservative of dough and bread products , with a minimal inhibition of fermentative activity of the yeast.

In GB1458625 no hint is given that would solve the problem. Also none of the other prior art documents would lead the skilled person to the solution stated above.

Thus the subject-matter of claims 1,3,8,9,11,12,14,15 also involves an inventive step (Article 33(3) PCT).

Claims 2,4-7,10,13 are dependent claims and as such also meet the requirements of the PCT with respect to novelty and inventive step.

EPO - DG 1

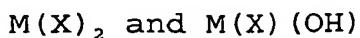
06 JUN 2005

New claims

(101)

1. A mixture of salts, comprising two or more salts of formulas

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wherein M is an alkaline-earth metal cation and X is an organic carboxylic acid anion, the alkaline-earth metal being calcium or magnesium or calcium and magnesium, and the organic carboxylic acid being one (or more) organic carboxylic acid(s), and

wherein n in the formula  $(2-n)/n$ , derived from the total formula of the mixture of salts  $M(X)_{2-n}(OH)_n$ , is comprised in the range of 0-2 and n is not 0 or 2,

for use in preparing a dough, said dough being prepared by fermentation.

2. The mixture of salts according to claim 1, wherein n is comprised in the range of 0.1-1.9, preferably 0.5-1.5 and more preferably 0.8-1.2.

3. A mixture of salts, comprising two or more mixtures of salts as defined in claim 1 or 2, for use in preparing a dough, said dough being prepared by fermentation.

4. The mixture of salts according to any one of the preceding claims, wherein the organic carboxylic acid is a monocarboxylic acid.

5. The mixture of salts according to claim 4, wherein the monocarboxylic acid is propionic acid or acetic acid, preferably propionic acid.

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6. The mixture of salts according to any one of the preceding claims, wherein the alkaline-earth metal is calcium and the organic carboxylic acid is propionic acid.

5 7. The mixture of salts according to any one of the preceding claims, wherein the alkaline-earth metal is calcium and magnesium and the organic carboxylic acid is propionic acid.

10 8. A solution or suspension, comprising water and dissolved or suspended therein the mixture of salts according to any one of the preceding claims,

for use in preparing a dough, said dough being prepared by fermentation.

15 9. A method of preparing a dough, said dough being prepared by fermentation, in which method the mixture of salts according to any one of claims 1-7 is mixed with flour, water, yeast and common salt.

20 10. The method according to claim 9, wherein the amount of the mixture of salts is comprised in the range of 0.1-10 wt.% based on flour weight, preferably 0.2-5 wt.%, more preferably 0.3-2 wt.%, and is most preferably about 25 0.5 wt.%.

11. A dough, obtainable by the method of claim 9 or 10.

30 12. A dough, comprising the mixture of salts according to any one of claims 1-7 in addition to flour, water, yeast and common salt.

35 13. The dough according to claim 12, wherein the amount of the mixture of salts is comprised in the range of 0.1-10 wt.% based on flour weight, preferably 0.2-5 wt.%,

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more preferably 0.3-2 wt.%, and is most preferably about 0.5 wt.%.

14. A method of making a bread product, comprising  
5 baking the dough according to any one of claims 11-13.

15. A bread product, obtainable by the method of claim  
14.